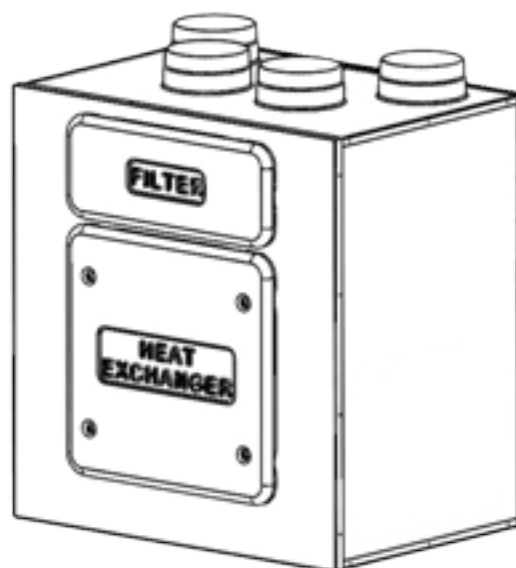


Installation Manual (installer & user)

QR400ABP

Heat Recovery Ventilation Unit



Read this manual carefully before using the product and keep it in a safe place for reference as necessary.

This product was constructed up to standard and in compliance with regulations relating to electrical equipment and must be installed by technically qualified personnel.

The manufacturer assumes no responsibility for damage to persons or property resulting from failure to observe the instructions contained in this manual.

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2 PRECAUTIONS

WARNING

Make sure that the mains supply to the unit is disconnected before performing any installation, service, maintenance or electrical work!

WARNING

The installation and service of the unit and complete ventilation system must be performed by an authorized installer and in accordance with local rules and regulations.

WARNING

If any abnormality in operation is detected, disconnect the device from the mains supply and contact a qualified technician immediately.

TRANSPORT AND STORAGE

- Do not leave the device exposed to atmospheric agents (rain, sun, snow, etc.).
- Duct connections/duct ends must be covered during storage and installation

INSTALLATION

- After removing the product from its packaging, verify its conditions. Do not leave packaging within the reach of children or people with disabilities.
- Beware of sharp edges. Use protective gloves.
- The device should not be used as an activator for water heaters, stoves, etc., nor should it discharge into hot air/fume vent ducts deriving from any type of combustion unit or tumble dryer. It must expel air outside via its own special duct.
- If the environment in which the product is installed also houses a fuel-operating device (water heater, methane stove etc., that is not a "sealed chamber" type), it is essential to ensure adequate air intake, to ensure good combustion and proper equipment operation.
- The electrical system to which the device is connected must comply with local regulations.
- Before connecting the product to the power supply or the power outlet, ensure that:
 - the data plate (voltage and frequency) correspond to those of the electrical mains
 - the electrical power supply/socket is adequate for maximum device power
- For installation an omnipolar switch should be incorporated in the fixed wiring, in accordance with the wiring rules, to provide a full disconnection under overvoltage category III conditions (contact opening distance equal to or greater than 3mm).

USE

- The device should not be used for applications other than those specified in this manual.
- The device is not intended for use by persons (including children) with reduced physical, sensory or mental capacities or those with a lack of experience and knowledge, unless they have been given supervision or instruction concerning use of the device from a person responsible for their safety. Children should be supervised to ensure that they do not play with the device.
- Do not touch the appliance with wet or damp hands/feet.
- The device is designed to extract clean air only, i.e. without grease, soot, chemical or corrosive agents, or flammable or explosive mixtures.
- Do not use the product in the presence of inflammable vapours, such as alcohol, insecticides, gasoline, etc.
- **The system should operate continuously, and only be stopped for maintenance/service.**
- Do not obstruct ducts or grilles to ensure optimum air passage.
- Do not immerse the device or its parts in water or other liquids.
- Operating temperature: 0°C up to +40°C.

SERVICE

- Although the mains supply to the unit has been disconnected there is still risk for injury due to rotating parts that have not come to a complete standstill.
- Beware of sharp edges. Use protective gloves.
- Use original spare parts only for repairs.

3 PRODUCT INFORMATION

3.1 General

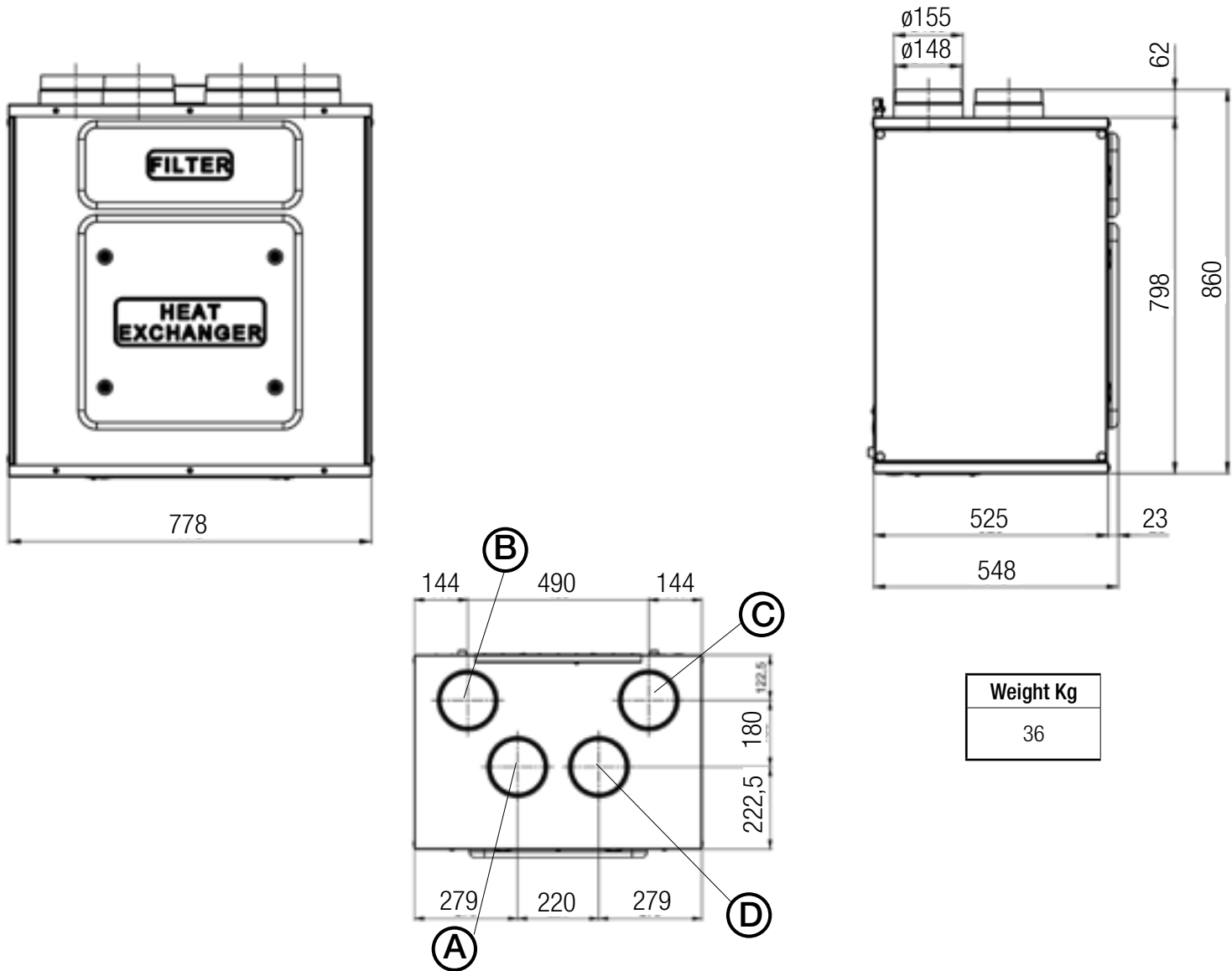
This is the Installation Manual of QR400A BP heat recovery ventilation unit.

This manual consists of basic information and recommendations concerning installation, commissioning, use and service operations to ensure a proper fail-free operation of the unit.

The key to proper, safe and smooth operation of the unit is to read this manual thoroughly, use the unit according to given guidelines and follow all safety requirements.

The QR400A BP is supplied with its CTRL-DSP remote multifunction control panel as standard. The package also includes 2 condensation elbows and 2 plugs for the water drainage.

3.2 Dimensions (mm) and Weight



3.3 Connections

LEFT	Connections from and to outside are set on the left side of the unit front view	DEFAULT
RIGHT	Connections from and to outside are set on the right side of the unit front view	

The factory setting is LEFT.

Fig. 3.a Connections in LEFT orientation

- Ⓐ Intake air from outside
- Ⓑ Exhaust air to outside
- Ⓒ Supply air to inside
- Ⓓ Extract air from inside
- Ⓔ Winter condensation drainage
- Ⓕ Summer condensation drainage

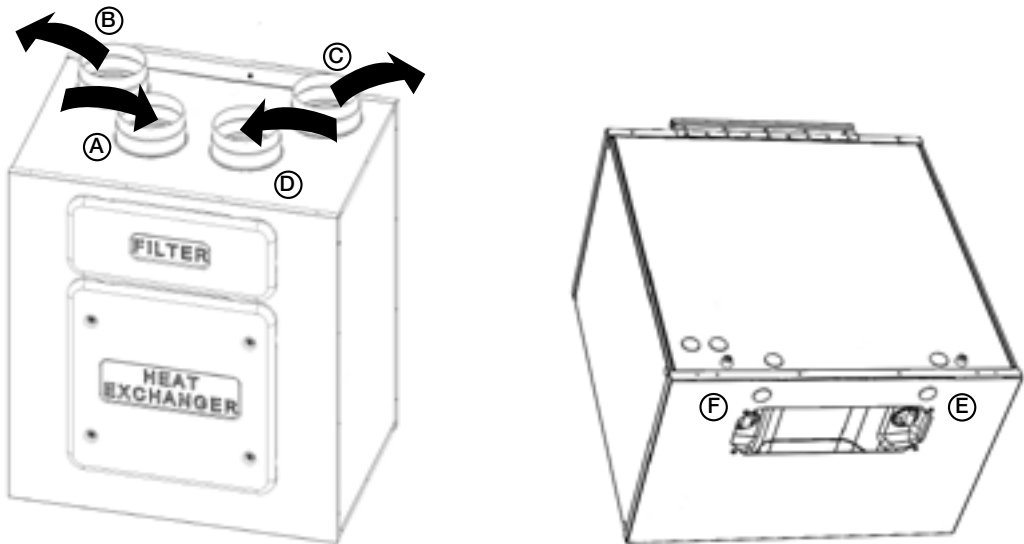
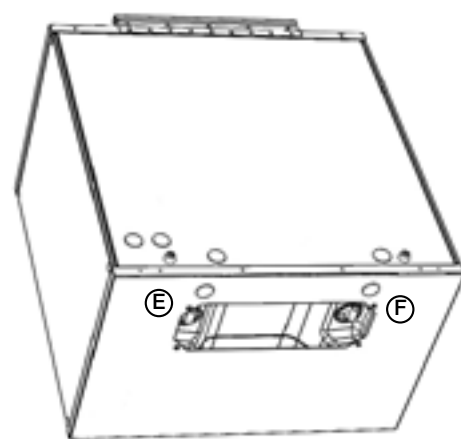
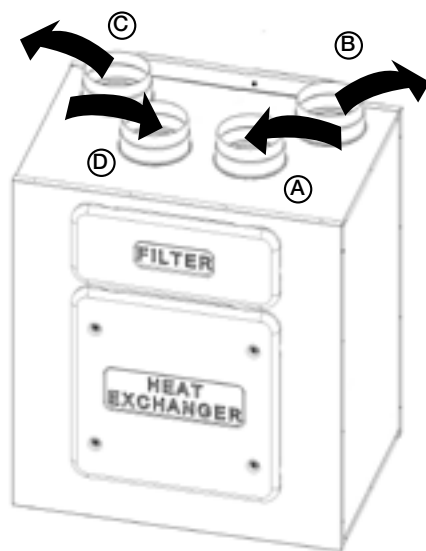


Fig. 3.b Connections in RIGHT orientation

- Ⓐ Intake air from outside
- Ⓑ Exhaust air to outside
- Ⓒ Supply air to inside
- Ⓓ Extract air from inside
- Ⓔ Winter condensation drainage
- Ⓕ Summer condensation drainage



To set the RIGHT orientation of the machine:

- Modify the orientation on the CTRL-DSP (point 7.2 - Installer menu: 3 Machine Orientation).
- Move the F7 filter from the left to the right side.
- Replace the ducting connection label on the top of the casing and the water drainage label on the bottom of the casing with those supplied with this installation manual.

3.4 Space required

Make sure that enough space is left around the unit to allow easy maintenance (access to filters, terminal box and removal of the side and front inspection panels).

3.5 Rating label



Fig.3.c Rating label

4 TRANSPORT AND STORAGE

WARNING

Make sure that specific warnings and cautions in Chapter 2 "Precautions" are carefully read, understood and applied!

The appliance is delivered in one carton box.

The appliance should be stored and transported in such a way that it is protected against physical damage that can harm spigots, casing, display etc. It should be covered so that dust, rain and snow cannot enter and damage the unit and its components.

5 INSTALLATION

WARNING

Make sure that specific warnings and cautions in Chapter 2 "Precautions" are carefully read, understood and applied!

This section describes how to install the unit correctly.

The unit must be installed according to these instructions.

5.1 Unpacking

Verify that the unit (and eventual accessories) delivered is according to order before starting the installation. Any discrepancies from the ordered equipment must be reported to the supplier.

5.2 Where/how to install

- All QR units are meant for indoor installation in a heated space.
- Mount the unit on flat surface (wall).
- The unit must always be installed vertically.
- It's important that the unit is completely leveled before it is put into operation.

- Place the unit preferably in a separate room (e.g. storage, laundry room or similar).
- When choosing the location it should be kept in mind that the unit requires maintenance regularly and that the inspection doors should be easily accessible.
- Leave free space for opening the removable panels and for removal of the main components (see 3.4).
- The outdoor air grilles if possible be put in the northern or eastern side of the building and away from other exhaust outlets like kitchen fan exhausts or laundry room outlets.

5.3 Installation

The unit must be installed in the following position.

It is important that the unit is vertical in order for the condensation drainage to work properly.

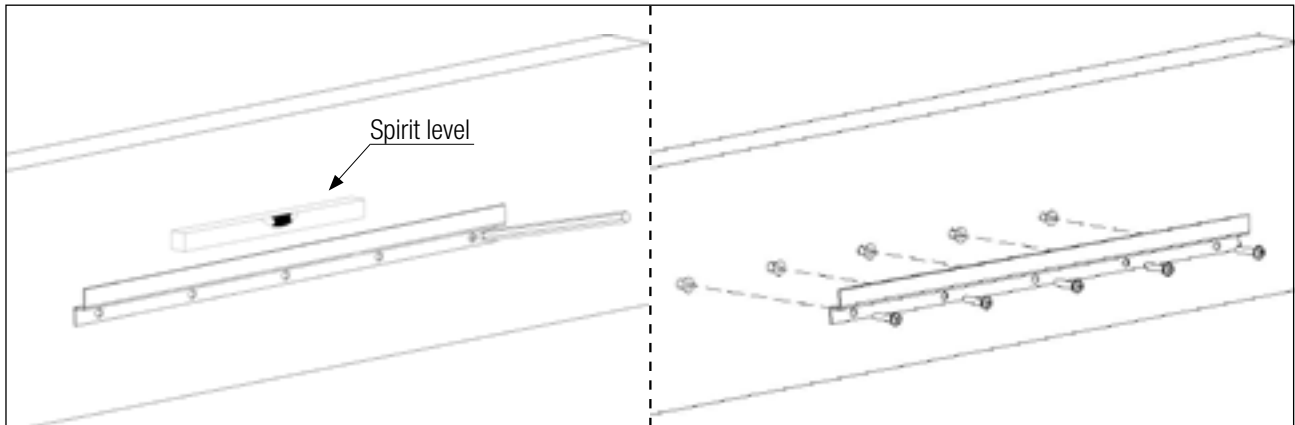


Fig. 5.a.b

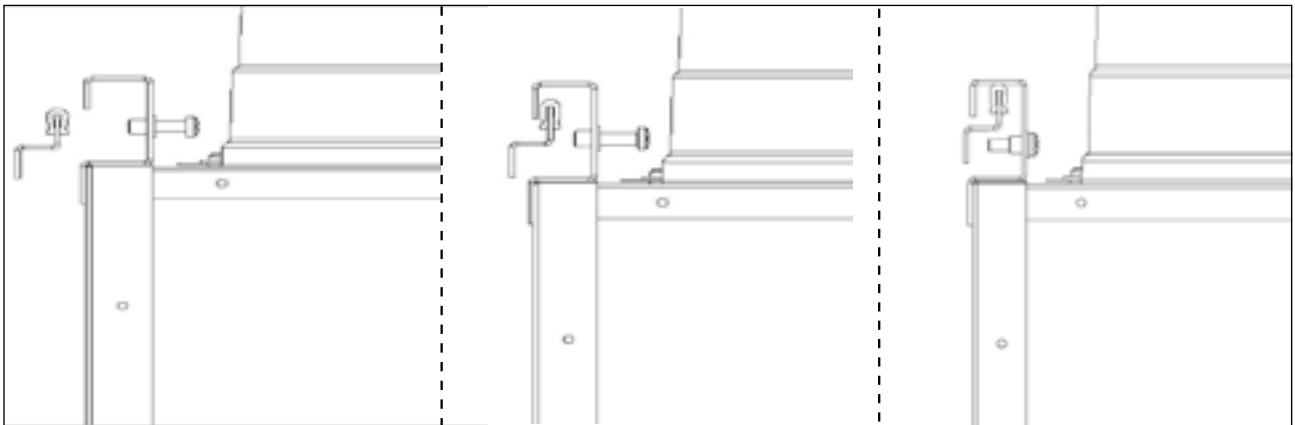


Fig. 5.c

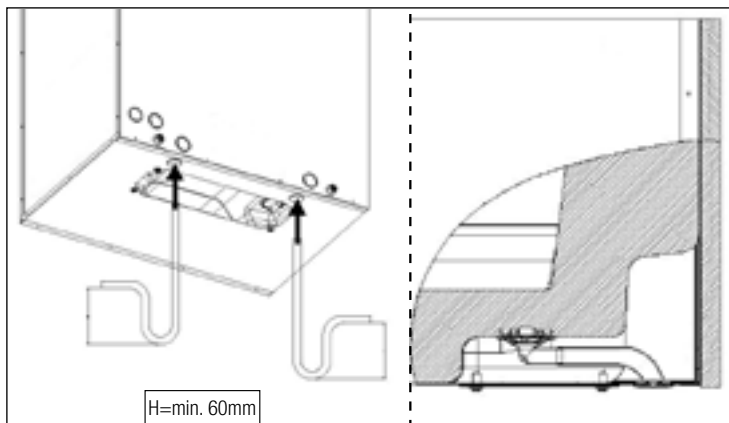


Fig. 5.d

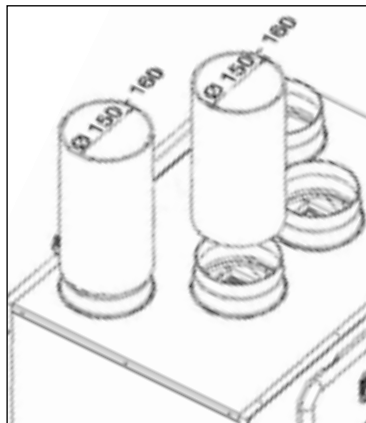


Fig. 5.e

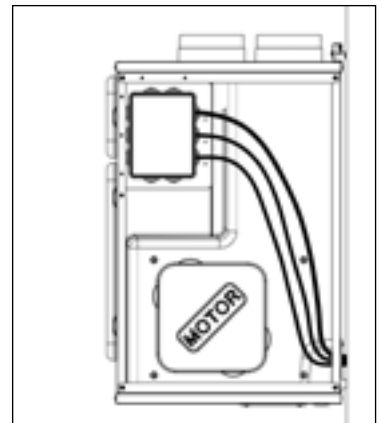


Fig. 5.f

- 5.a** Prepare the surface where the unit is to be mounted. Make sure that the surface is flat, leveled and that it supports the weight of the unit. Perform the installation in accordance with local rules and regulations.
- 5.b** Use the wall fixing bracket as template to indicate where to drill the holes in the wall: make sure it is at spirit level. Use appropriate screws and wall plugs (not supplied) to fix the wall fixing bracket.
- 5.c** Hook the unit at its bracket and fix it by means of the safety screw.
- 5.d** Connect the supplied condensation elbow(s) to the drainage hole(s) in the opening at the bottom of the unit: in case close and seal the non-used hole with the 2 supplied plugs (one each side of the hole). Make sure of water and air tightness of all connections. It is necessary to use a U-bend (or similar) in the condensation drainage pipe. The water drainage connections can be made either through the holes at the bottom side of the casing or through the opening at the rear side of the casing.
- 5.e** Connect the unit to the duct system. Make sure that all necessary accessories are used to create a functional ventilation solution.
- 5.f** Connect the unit electrically according to point 5.4. Check that it starts up correctly.

5.4 Electric Connections

WARNING

Make sure that the mains supply to the unit is disconnected before performing any installation, service, maintenance or electrical work!

WARNING

The installation and service of the unit and complete ventilation system must be performed by an authorized installer and in accordance with local rules and regulations.

The unit must be earthed.

The QR400A BP is wired internally from factory.

To connect the the CTRL-DSP to the mother board use a 4pole twisted-pair cable: max length 30m.

Figures below show the wiring diagram.

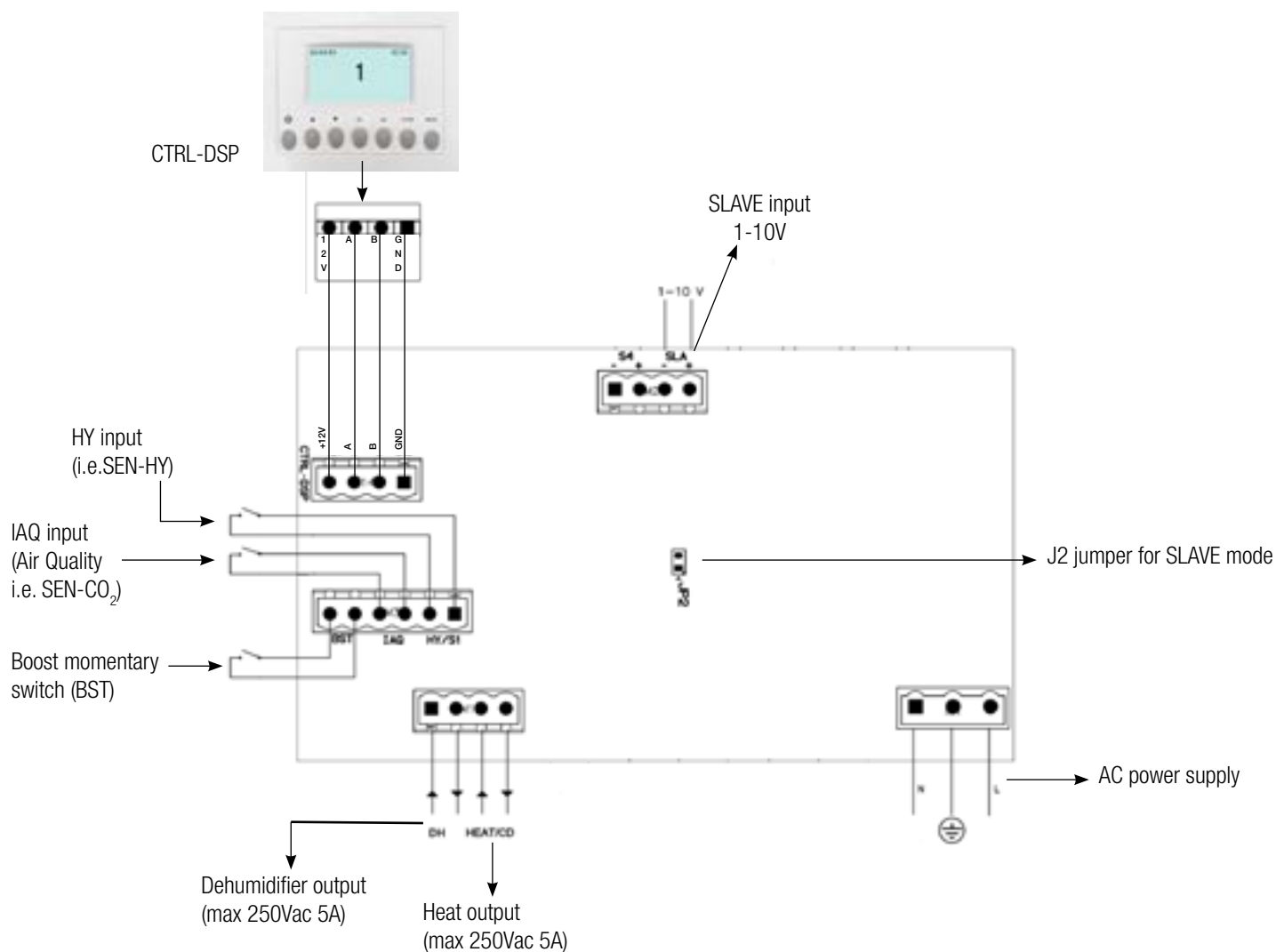


Fig. 5.g Electrical connections on the motherboard fitted in the terminal box.

Inputs/commands

N°1 AC supply connector

N°3 on/off inputs (volt-free contacts), two for ambient sensors (named HY, IAQ) and one for boost momentary switch (named BST).

N°1 1-10V analog input (named SLAVE).

N°1 jumper for SLAVE MODE selection.

N°1 4-pole connector for CTRL-DSP (RS485 plus 12Vdc supply).

Outputs

N°1 on/off output for pre-heating/post-heating (relay contact – 250Vac 5A).

N°1 on/off output for dehumidification (relay contact – 250Vac 5A).

6.1 Setting Fan speed

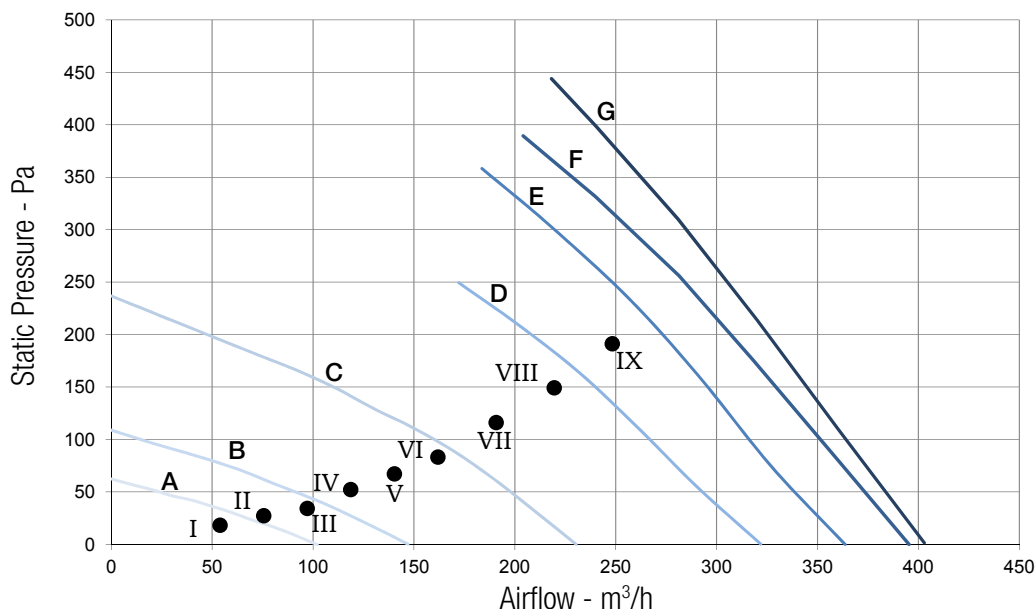
The speed of the unit can be adjusted during installation according to required ventilation rate.

Figure 6.a below shows performance curves (for supply air and extract air) at different settings of the 0-10V signal to the motors. Airflow and consumption refer to one single motor.

Table 6.b indicates the efficiency of the heat exchanger and of the condensation produced in different climatic conditions, to help the installer or the designer of the ventilation system to decide if to connect one or both condensation drainages.

High production of condensation is the direct consequence of a high efficiency level as well as of the humidity rate.

Table 6.c indicates the sound level at the different speed.



Curve	Speed %	W max	m³/h max
A (min)	23	12	102
B	30	19	149
C	46	43	230
D	60	88	322
E	77	134	364
F	92	149	395
G (max)	100	160	403

Fig. 6.a Intake curve according to Reg. 1253/2014 (ErP). Product tested without filter F7.

Working point	W	m³/h	SPI (W/m³/h)	ηt % ⁽¹⁾
I	8,9	54	0,1648	92
II	11,2	76	0,1481	92
III	14,2	97	0,1461	91
IV	19,4	119	0,1633	90
V	25,3	140	0,1802	89
VI	32,7	162	0,2019	89
VII	47,4	191	0,2484	88
VIII	64,7	220	0,2946	87
IX	87,8	248	0,3535	86

⁽¹⁾ Thermal efficiency of the unit.

EXTERNAL		INTERNAL		100 m³/h		200 m³/h		300 m³/h		400 m³/h	
T	R. H.	T	R. H.	η	H ₂ O	η	H ₂ O	η	H ₂ O	η	H ₂ O
°C	%	°C	%	%	kg/h	%	kg/h	%	kg/h	%	kg/h
-18	60	20	30	95,9	0,31	92,3	0,59	89,2	0,83	86,4	1,05
-18	70	20	40	96,4	0,44	93,3	0,85	90,6	1,23	88,2	1,58
-18	80	20	50	96,9	0,56	94,2	1,1	91,9	1,6	89,8	2,08
-10	60	20	30	95,7	0,2	91,8	0,36	88,3	0,49	85,2	0,58
-10	70	20	40	96,3	0,32	93	0,6	90,1	0,85	87,5	1,07
-10	80	20	50	96,8	0,43	94	0,82	91,6	1,19	89,4	1,54
0	50	20	30	94,7	0,02	89,8	0	85,6	0	82	0
0	60	20	40	95,5	0,12	91,5	0,2	87,8	0,25	84,3	0,27
0	70	20	50	96,3	0,22	93	0,4	90	0,56	87,3	0,69
10	50	20	40	94,5	0	89,8	0	85,6	0	82	0
10	60	20	50	94,5	0	89,8	0	85,6	0	82	0
10	70	20	60	95,3	0,04	90,9	0,06	86,6	0,06	82,5	0,03
35	60	26	50	94,6	0	89,9	0	85,9	0	82,3	0
35	70	26	55	96,3	0,09	92,8	0,15	89,4	0,2	86,2	0,22
35	80	26	60	97,7	0,19	95,7	0,36	93,9	0,52	92,2	0,67
40	60	26	50	96,5	0,16	93,3	0,29	90,2	0,39	87,3	0,46
40	70	26	55	97,7	0,28	95,6	0,54	93,7	0,78	91,9	1
40	80	26	60	98,5	0,39	97,2	0,77	96,1	1,13	95	1,49

Table 6.b Thermal efficiency of the heat exchanger and average production of condensation water. Data supplied by the manufacturer of the heat exchanger. The heat exchanger is tested at the University of Luzern (Hochschule Lezern).

Table 6.c Sound level

100%	Lw dB - SOUND POWER OCTAVE BAND									Lp dB(A)
	63	125	250	500	1 K	2 K	4 K	8K	Tot	@3m
Intake	73	61	67	69	59	56	50	43	75	47
Supply	72	61	63	65	56	50	41	31	74	43
Extract	73	60	63	65	57	51	42	31	74	44
Exhaust	73	61	66	67	58	55	49	41	75	46
Breakout	71	64	62	67	59	53	45	33	74	45

80%	Lw dB - SOUND POWER OCTAVE BAND									Lp dB(A)
	63	125	250	500	1 K	2 K	4 K	8K	Tot	@3m
Intake	65	61	68	67	58	56	49	41	72	46
Supply	63	59	63	64	55	49	40	29	69	42
Extract	64	59	63	63	56	51	41	30	69	42
Exhaust	64	60	66	67	57	54	48	41	71	45
Breakout	59	64	63	65	57	51	43	31	70	44

60%	Lw dB - SOUND POWER OCTAVE BAND									Lp dB(A)
	63	125	250	500	1 K	2 K	4 K	8K	Tot	@3m
Intake	55	55	67	55	49	47	40	31	68	39
Supply	53	53	62	52	47	41	32	22	63	35
Extract	58	52	60	51	47	42	32	22	63	34
Exhaust	55	54	66	55	49	47	40	31	67	39
Breakout	54	53	59	52	48	43	33	23	62	34

40%	Lw dB - SOUND POWER OCTAVE BAND									Lp dB(A)
	63	125	250	500	1 K	2 K	4 K	8K	Tot	@3m
Intake	50	50	57	46	39	37	27	20	59	30
Supply	52	50	56	43	36	30	22	15	58	28
Extract	52	47	54	43	37	31	21	15	57	26
Exhaust	51	49	55	47	39	36	28	21	58	29
Breakout	52	47	52	44	38	31	21	15	56	26

Total noise measured in reverberation chamber at ELTA FANS laboratory (UK)

dBA figures are average spherical free-field, for comparative use only.

6.2 Before Starting the System

When the installation is finished , check that:

- Filters are mounted correctly
- The unit is installed in accordance with the instructions
- The unit is correctly wired
- Eventual outdoor and exhaust air dampers and silencers are installed and that the duct system is correctly connected to the unit
- All ducts are sufficiently insulated and installed according to local rules and regulations
- Outdoor air intake is positioned with sufficient distance to pollution sources (kitchen ventilator exhaust, central vacuum system exhaust or similar)
- The unit is correctly set and commissioned.

WARNING

Make sure that specific warnings and cautions in Chapter 2 "Precautions" are carefully read, understood and applied!

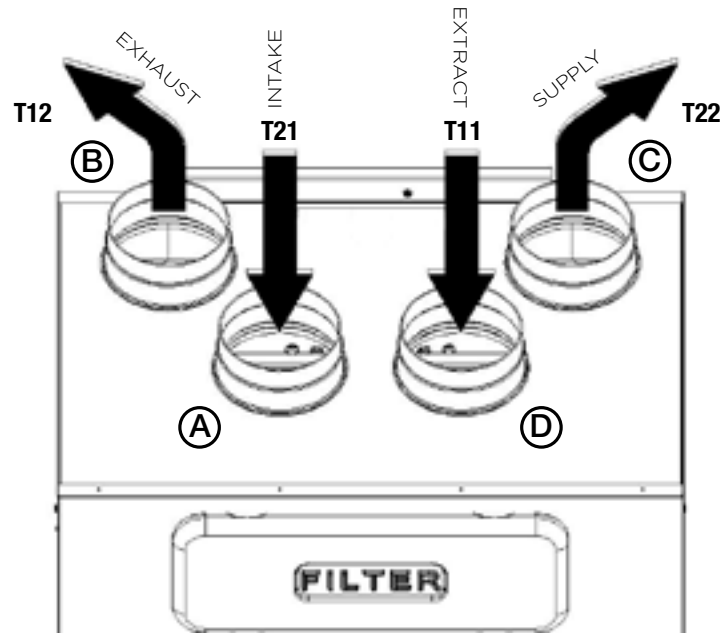


Fig. 7.a Temperature probes in LEFT orientation

- Ⓐ Intake air from outside
- Ⓑ Exhaust air to outside
- Ⓒ Supply air to inside
- Ⓓ Extract air from inside

In case of RIGHT orientation, follows instructions as per point 3.3 - Fig. 3.b in order to get the temperature probes operate correctly.

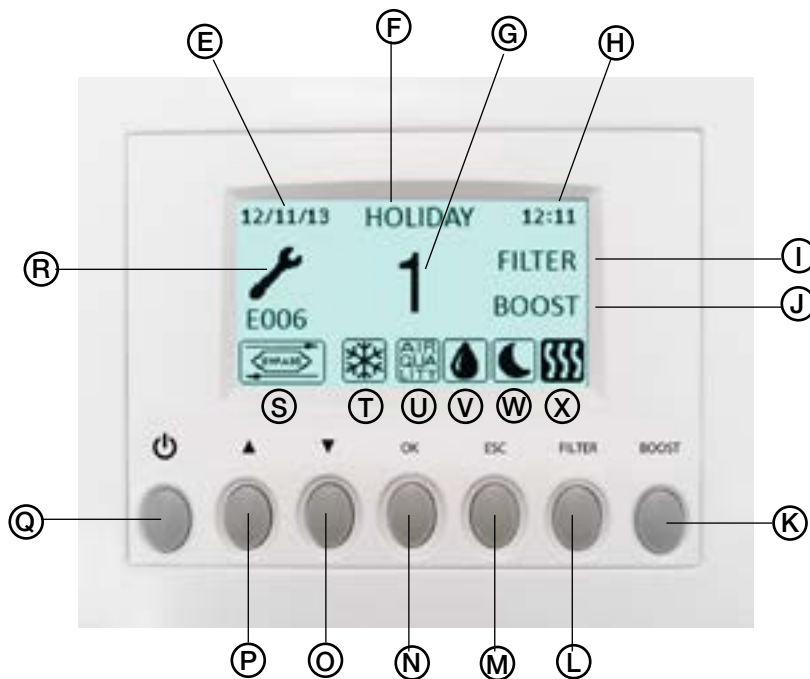


Fig. 7.b CTRL-DSP

- Ⓔ DATE: shows the current date
- Ⓕ MODE: shows the operation mode
- Ⓖ SPEED: shows the selected speed
- Ⓗ TIME: shows the time
- Ⓘ FILTER ALARM: shows that filters need to be maintained/replaced
- Ⓙ BOOST: shows that BOOST speed is activated
- Ⓚ BOOST KEY: to manually activate the BOOST speed
- Ⓛ FILTER RESET KEY: to reset the Filter Alarm
- Ⓜ ESC key: to exit and go back to the previous menu
- Ⓝ OK key: to enter the selected menu
- Ⓞ to go DOWN with the menu selection
- Ⓟ to go UP with the menu selection
- Ⓠ to power off the ventilation unit
- Ⓡ shows ERROR ALARM - see point 7.3 to check the type of error
- Ⓢ this symbol shows if the bypass is active
- Ⓣ this symbol shows that ANTI-FROST is active
- Ⓤ this symbol shows that the IAQ input is activated, i.e.CO2
- Ⓥ this symbol shows that the HY input is activated.
- Ⓦ this symbol shows that NIGHT MODE is activated
- Ⓧ this symbol shows that Heating output is activated

Some operations can be selected either from the CTRL-DSP buttons or from the menu

When powered on, the CTRL-DSP displays as follows:



Fig. 7.c CTRL-DSP operation screen

7.1 User Menu on CTRL-DSP

To enter the user menu press OK or ESC.
To exit the user menu press ESC or wait for about 60 seconds.




User menu
1 Mode Selection
2 Boost
3 Boost Duration
4 Reset FILTER Alarm
5 Night Mode
6 Installer menu

Use ▲ or ▼ to select the menu.
Press OK to enter.

User menu
1 Mode Selection
2 Boost
3 Boost Duration
4 Reset FILTER Alarm
5 Night Mode
6 Installer menu

Mode selection allows the choice among 3V (three speed), OFF and HOLIDAY mode.
Press OK to enter.
Use ▲ or ▼ to choose the mode.
Press OK to select.
Press ESC to go back to the previous menu.

Mode selection
3V

3V mode (DEFAULT)
3V is flashing: press OK to select.
Once powered on, the unit runs at speed 1.
Press ESC or wait for about 60 sec to go back to the operation screen (Fig. 7.c).
In case of activation of either HY or IAQ sensor inputs (OR logic), the unit speed increases by 15%, and the sensor related icon  or  is displayed. Once all on/off sensors inputs are deactivated, the unit reverts back to selected speed.
In case the user has activated the NIGHT MODE , during nocturnal hours (from 8:00 p.m. to 8:00 a.m - fixed period of time) the sensor logic described above is ignored (the sensors have no effect and the unit runs at selected speed).



Mode selection
OFF

OFF mode
OFF is flashing: press OK to select.
The fans are switched off (the power supply to the motors is interrupted).
Press ESC or wait for about 60 sec to go back to the operation screen: OFF is displayed.

Mode selection
Holiday

HOLIDAY mode
Holiday is flashing: press OK to select.
The unit works at HOLIDAY speed.
Press ESC or wait for about 60 sec to go back to the operation screen.


User menu
1 Mode Selection
2 Boost
3 Boost Duration
4 Reset FILTER Alarm
5 Night Mode
6 Installer menu

It allows to select the Boost speed.
Press OK to select.
Choice NO or YES using ▲ or ▼.
Press OK to select.
Boost speed can be selected only if the Mode selection is 3V or HOLIDAY.
Boost function can be activated in these ways:
- In the user menu, with the Boost function
- via the BOOST button on the CTRL-DSP (Fig.7.b - )
- Using a momentary switch connected to the BST ON/OFF (only if no dehumidifier is installed) - Fig.5.g.
When Boost is active, the icon  is displayed on the LCD and the unit runs at 100% speed for the duration set in the “Boost duration” menu; afterwards the unit reverts to selected speed.
Boost can be deactivated by holding BOOST button on the CTRL-DSP for 2 seconds.

User menu
1 Mode Selection
2 Boost
3 Boost Duration
4 Reset FILTER Alarm
5 Night Mode
6 Installer menu

It allows to set the duration of the boost speed.
Press OK to select.
The factory setting (DEFAULT) is 15'.
Time options are 15' - 30' - 45' - 60'.
Time is flashing: use ▲ increase the time and ▼ to decrease.
Press OK to select.

User menu
1 Mode Selection
2 Boost
3 Boost Duration
4 Reset FILTER Alarm
5 Night Mode
6 Installer menu

It allows to reset the filter alarm after maintenance/replacement.
It can be selected only if the FILTER icon is displayed (Fig.7.b - )
Press OK to select.

User menu
1 Mode Selection
2 Boost
3 Boost Duration
4 Reset FILTER Alarm
5 Night Mode
6 Installer menu

It allows to deactivate the automatic operation of the speed increased via sensors during nocturnal hours.
It operates from 8:00 p.m. to 8:00 a.m (fixed period of time). The sensors have no effect and the unit runs at the selected continuous speed.
OFF is flashing: use ▲ or ▼ to change to ON.
Press OK to select.
The factory setting (DEFAULT) is OFF.

User menu
1 Mode Selection
2 Boost
3 Boost Duration
4 Reset FILTER Alarm
5 Night Mode
6 Installer menu

It allows to select the Installer menu.

Enter
installer menu?

Press OK to enter the Installer menu.
Press ESC to go back to the previous menu.

7.2 Installer Menu on CTRL-DSP

The Installer menu can be selected either by selecting point 6) in the User menu or by holding OK+ESC for about 7 seconds.
To exit the installer menu press ESC or wait for about 60 seconds.

Installer menu
1 Language
2 Date/Time
3 Machine orientation
4 Bypass settings
5 Heating
6 Heating Threshold
7 Dehumidification
8 Speed Setting
9 Airflow Balancing
10 F7 filter
11 Filter Alarm interval
12 Working Hours Counter
13 Save settings
14 Load settings
15 Restore Default Settings
16 Contrast
17 Debug page

Use ▲ or ▼ to select the menu.
NOTE:
Menu 6 "Heating Threshold" displays only if Menu 5 "Heating" is set on PRE or POST.

Installer menu	
1	Language
2	Date/Time
3	Machine orientation
4	Bypass settings
5	Heating

It allows to select the language among English, Italiano, Nederlands, Français, Deutsch, Espanol.
Press OK to enter.
Language is flashing: use ▲ or ▼ to choose.
Press OK to select.
The factory setting (DEFAULT) is English.

Installer menu	
1	Language
2	Date/Time
3	Machine orientation
4	Bypass settings
5	Heating

It allows to set the date and the time
Press OK to enter.
Use ▲ or ▼ to choose.
Press OK for setting and again to confirm.
Press ESC to go back to the previous menu.

Installer menu	
1	Language
2	Date/Time
3	Machine orientation
4	Bypass settings
5	Heating

It allows to select the orientation of the duct connections from and to outside (LEFT or RIGHT - paragraph 3.3).
Press OK to enter.
Use ▲ or ▼ to choose.
Press OK for setting.
The factory setting (DEFAULT) is LEFT.

Installer menu	
1	Language
2	Date/Time
3	Machine orientation
4	Bypass settings
5	Heating



It allows to set the Bypass operation parameters
Press OK to enter.
Use ▲ or ▼ to choose "Desired Temperature", "Tmax Free Heating", "Tmin Free Cooling"
For definitions see "Bypass" (paragraph 7.3)
Press OK to select.

The setting ranges are:
Desired Temperature: 15°C ÷ 30°C
Tmax Free Heating: 25°C ÷ 30°C
Tmin Free Cooling: 15°C ÷ 20°C
Use ▲ or ▼ to increase or decrease the temperature.
Press OK to select.
Press ESC to go back to the previous menu.

The factory settings (DEFAULT) are:
Desired Temperature: 23°C
Tmax Free Heating: 28°C
Tmin Free Cooling: 18°C

Installer menu	
1	Language
2	Date/Time
3	Machine orientation
4	Bypass settings
5	Heating

To be selected only in case an external heating element (not supplied) is present.
Press OK to enter.
Use ▲ or ▼ to choose NO/PRE/POST.
Press OK to select.
The factory setting (DEFAULT) is NO.

NO: HEAT output (Fig. 5.g) is never activated
PRE: the heating element is intalled at "intake air side" (Fig.7.a - (A)).
HEAT output (Fig. 5.g) is activated and heating icon  displays on LCD when T21 < HEATING THRESHOLD (Fig.7.a)
POST: the heating element is intalled at "supply air side" (Fig.7.a - (C)).
HEAT output (Fig. 5.g) is activated and heating icon  displays on LCD when T11 < HEATING THRESHOLD (Fig.7.a)

Installer menu

- 6 Heating Threshold
- 7 Dehumidification
- 8 Speed Setting
- 9 Airflow Balancing
- 10 F7 filter

This option displays only if "Heating" is set on PRE or POST.
It allows to set the heating threshold in case of PRE or POST heating.
Press OK to enter.
Use ▲ or ▼ to set the temperature.
Press OK to select.


Setting ranges:
PRE: -20°C ÷ 0°C
POST: +15°C ÷ +25°C

The factory settings (DEFAULT) are:
PRE: -10°C
POST: +20°C

Installer menu

- 6 Heating Threshold
- 7 Dehumidification
- 8 Speed Setting
- 9 Airflow Balancing
- 10 F7 filter

To be selected only in case an external dehumidifier (not supplied) is present.
Press OK to enter.
Use ▲ or ▼ to choose NO or YES.
The factory setting (DEFAULT) is NO.

The DH relay output is activated when the HY input is activated (Fig.5.g) and the icon  is displayed.
Note: in case dehumidifier is installed, the BST input (Fig.5.g) is used as alarm output.

Installer menu

- 6 Heating Threshold
- 7 Dehumidification
- 8 Speed Setting
- 9 Airflow Balancing
- 10 F7 filter

It allows to adjust the various speeds.
Press OK to enter.
Use ▲ or ▼ to choose speed 1, speed 2, speed 3 or Holiday.
Press OK to select.

The setting ranges are:
speed 1: 10% ÷ 80%
speed 2: 20% ÷ 90%
speed 3: 60% ÷ 100%
Holiday: 10% ÷ 40%
Use ▲ or ▼ to increase or decrease the speed percentage.
Press OK to select.
Press ESC to go back to the previous menu.

The factory settings (DEFAULT) are:
speed 1: 40%
speed 2: 70%
speed 3: 100%
Holiday: 20%

Installer menu

- 6 Heating Threshold
- 7 Dehumidification
- 8 Speed Setting
- 9 Airflow Balancing
- 10 F7 filter

It allows to adjust the balancing of the two airflows.
Press OK to enter.
"Supply airflow" is highlighted.
Press OK to enter.
The setting range is: -20% ÷ +20%
Use ▲ or ▼ to adjust supply airflow against extract airflow
Press OK to select.
Press ESC to go back to the previous menu.

The factory settings (DEFAULT) is 0%

Installer menu

- 6 Heating Threshold
- 7 Dehumidification
- 8 Speed Setting
- 9 Airflow Balancing
- 10 F7 filter

To be selected only in case an F7 filter is installed at the supply air side (Fig.7.a)
Press OK to enter.
Use ▲ or ▼ to choose "Not installed" or "Installed".
Press OK to select.
The factory setting (DEFAULT) is "Installed".

Installer menu	
11 Filter Alarm interval	
12 Working Hours Counter	
13 Save settings	
14 Load settings	
15 Restore Default Settings	

It allows to set the Filter Alarm period: the system has a timer which activates the “Filter” warning on the LCD at regular intervals.

Press OK to enter.

Use ▲ or ▼ to choose among 2-3-6 months or OFF.

Press OK to select.

The factory setting (DEFAULT) is 3 months if F7 filter is “Installed” or 6 months if F7 filter is “Not installed”

Installer menu	
11 Filter Alarm interval	
12 Working Hours Counter	
13 Save settings	
14 Load settings	
15 Restore Default Settings	

The system keeps trace of the actual working hours of the unit. This value cannot be changed. Data is saved both on the motherboard and on the control panel CTRL-DSP, to be safe in case of fault.

Press OK to enter.

Press OK or ESC to go back to the previous menu.

Installer menu	
11 Filter Alarm interval	
12 Working Hours Counter	
13 Save settings	
14 Load settings	
15 Restore Default Settings	

It allows to save the setting of the #1 (prototype) installation in the internal memory of the CTRL-DSP to be loaded afterwards in other units.

Press OK to enter.

Use ▲ or ▼ to choose the position where to save the setting. Up to 8 different settings can be saved.

Press OK to select.

Press OK to confirm.

Press ESC to go back to the previous menu.

Installer menu	
11 Filter Alarm interval	
12 Working Hours Counter	
13 Save settings	
14 Load settings	
15 Restore Default Settings	

It allows to load the saved setting on the next unit.

Press OK to enter.

Use ▲ or ▼ to choose the desired saved setting.

Press OK to select.

Press OK to confirm.

Press ESC to go back to the previous menu.

Installer menu	
11 Filter Alarm interval	
12 Working Hours Counter	
13 Save settings	
14 Load settings	
15 Restore Default Settings	

It allows to restore all the factory settings (DEFAULT).

Press OK to enter.

Press OK to confirm.

Installer menu	
16 Contrast	
17 Debug page	

It allows to set the LCD contrast.

Press OK to enter.

Use ▲ or ▼ to increase or decrease the contrast.

Press OK to confirm.

Installer menu	
16 Contrast	
17 Debug page	

It shows the internal functional parameters of the unit.

Press OK to enter.


Press ESC to go back to the previous menu.

7.3 Additional functionalities

SLAVE MODE

In case the SLAVE jumper (Fig.5.g - JP2) is short-circuited before powering the unit, the unit works in SLAVE MODE; the operating speed is determined by the 1-10V signal received at the SLAVE input. All the operating logics described in the Mode selection are ignored (paragraph 7.1).

BYPASS

The QR400A BP is equipped with a physical bypass which allows to mitigate the heat exchange when the indoor and outdoor temperature combinations are such that the heat exchange is not recommended. In this case the Bypass icon  is activated on the LCD.

The parameters “Desired Temperature”, “Tmax Free Heating”, “Tmin Free Cooling” (Installer Menu 4) are to be meant as follows:


“Desired Temperature” is the ambient temperature desired by the user
“Tmax Free Heating” is the maximum outside temperature allowed for free heating operation
“Tmin Free Cooling” is the minimum outside temperature allowed for free cooling operation

FAULT HANDLING

- Code error description (Fig.7.b - (R))
- E000 no RS485 connection
 - E001 no rotation of the exhaust air fan (Fig.8.a - (7))
 - E002 no rotation of the intake air fan (Fig.8.a - (6))
 - E003 thermistor T11 broken/disconnected (Fig.7.a)
 - E004 thermistor T12 broken/disconnected (Fig.7.a)
 - E005 thermistor T21 broken/disconnected (Fig.7.a)
 - E006 thermistor T22 broken/disconnected (Fig.7.a)
 - E007 dehumidifier alarm (BST INPUT)
 - E008 CTRL-DSP internal error

NOTE: the controller board verifies the presence of CTRL-DSP periodically; if CTRL-DSP is absent (or faulty), the unit works in 3V mode at speed 1 (DEFAULT condition).

ANTI-FROST

Intake Fan speed is reduced during very cold weather in order to prevent ice inside the unit which could damage the heat exchanger.
In this case the ANTI-FROST icon  is activated on the LCD.

8 MAINTENANCE AND SERVICE

WARNING

Make sure that specific warnings and cautions in Chapter 2 “Precautions” are carefully read, understood and applied!

Maintenance can be carried out by the user.
Service must be performed only by an authorized installer and in accordance with local rules and regulations .
Questions regarding installation, use, maintenance and service of the unit should be answered by your installer or place of purchase!

8.1 Components list

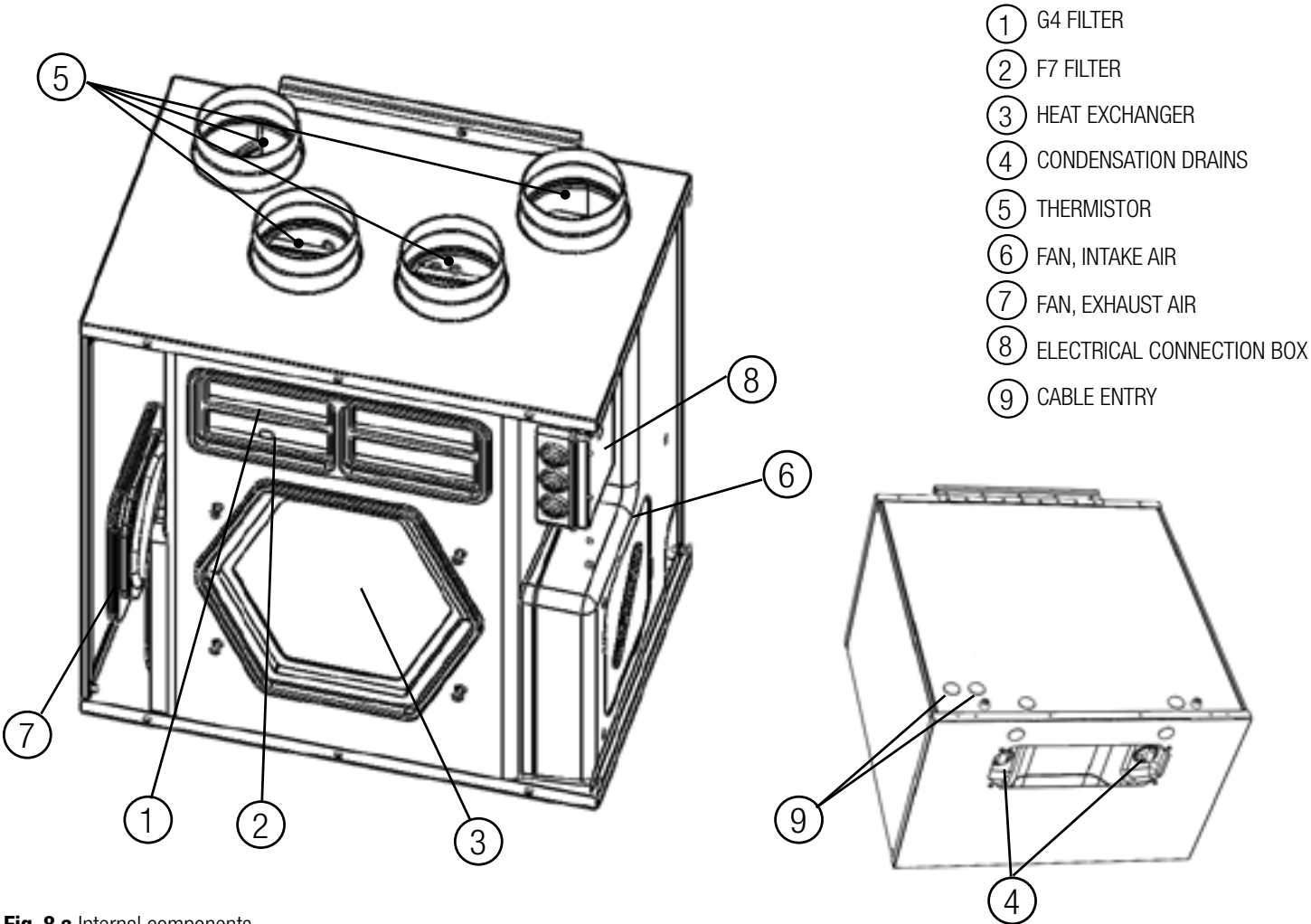


Fig. 8.a Internal components

8.2 Description of Components

Fans

The fans have external rotor motors of EC type which can be steplessly controlled individually between 10–100%. The motor bearings are life time lubricated and maintenance free. It is possible to easily disconnect and replace the fans if necessary.

Filters

The filters are of filter quality G4 for both the supply air and extract air filter. In addition an F7 Filter is supplied at the air intake. The filters need to be cleaned regularly (and replaced when polluted) during maintenance. New sets of filters can be acquired from your installer or wholesaler.

Heat exchanger

The unit is equipped with a highly efficient, counter-flow plate heat exchanger. Supply air temperature is therefore normally maintained without adding additional heat. The heat exchanger is removable for cleaning and maintenance during service.

Condensation drainage

Depending on the relative humidity in the extract air, condensation may occur on the cold surfaces of the heat exchanger, on one side in winter time, on the other side in summer time (table 6.b).

The condensate water is led out through drainage pipe.

Thermistors

Temperature probes to implement temperature dependent functions.

8.3 Maintenance

WARNING

Make sure that the mains supply to the unit is disconnected before performing any installation, service, maintenance or electrical work!

- Keep the unit surface free from dust.
- Clean the filters with a vacuum cleaner following the below illustrations (fig.8 b-c-d-e) when the FILTER signal is displayed on LCD. Their maintenance may differ per situation depending on the internal and external environmental conditions.
- Press FILTER button (Fig.7.b - **L**) to reset the Filter Alarm.
- Filters must be replaced every year.

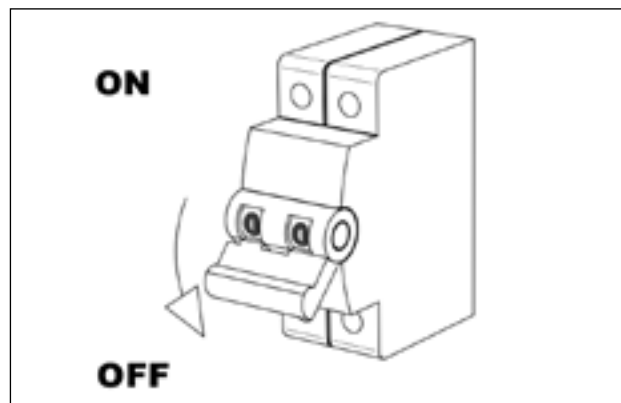


Fig. 8.b

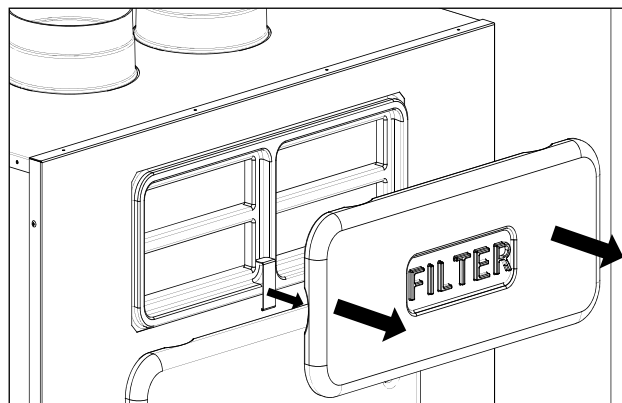


Fig. 8.c

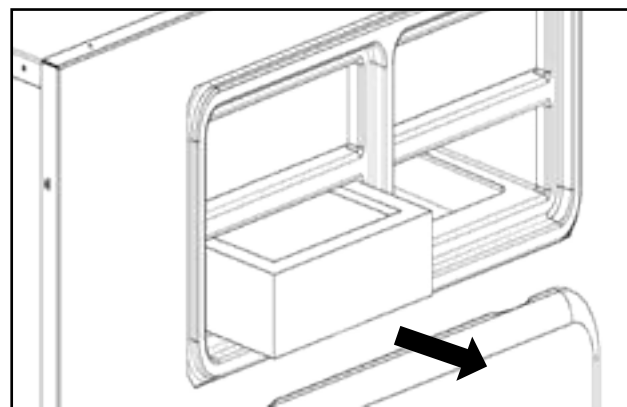


Fig. 8.d

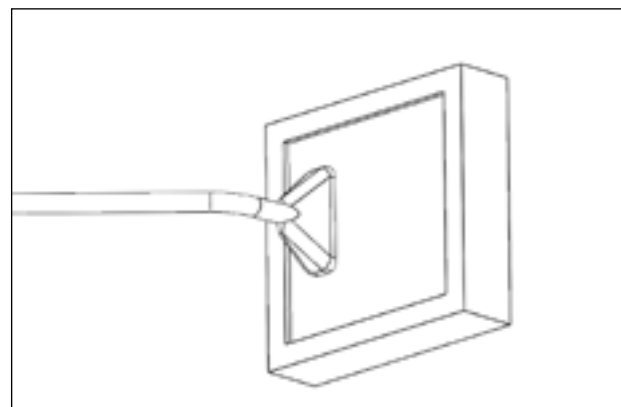


Fig. 8.e

8.4 Service

WARNING

Make sure that the mains supply to the unit is disconnected before performing any installation, service, maintenance or electrical work!

WARNING

The installation and service of the unit and complete ventilation system must be performed by an authorized installer and in accordance with local rules and regulations.

- Keep the unit surface free from dust.
- Clean the filters with a vacuum cleaner following the following illustrations (fig.8 f-g-h-i) when the FILTER signal is displayed on LCD. Their maintenance may differ per situation depending on the internal and external environmental conditions. Press FILTER button (Fig.7.b - **L**) to reset the Filter Alarm. Filters must be replaced every year.
- Clean the heat exchanger every year with a vacuum cleaner. This may differ per situation depending on internal and external environmental conditions and on frequency of filter cleaning (fig.8 f-j-k).
- Clean the fans every year with a vacuum cleaner. This may differ per situation depending on internal and external environmental conditions and on frequency of filter cleaning. Do not move the balance clips of the fan (fig.8 f-l-m)

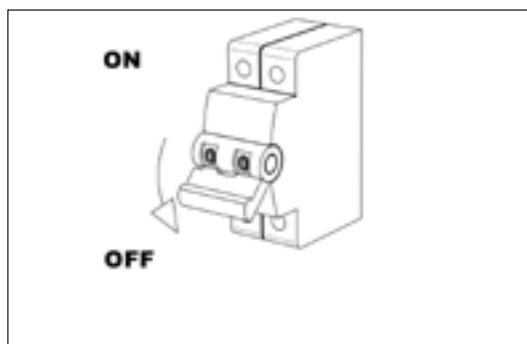


Fig. 8.f

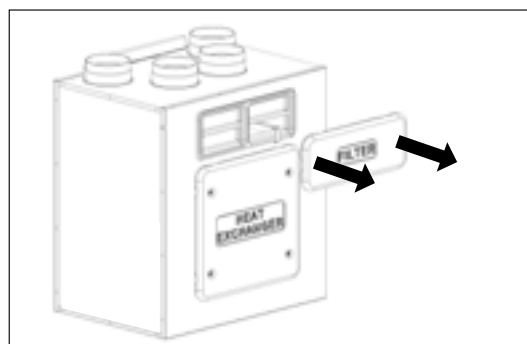


Fig. 8.g

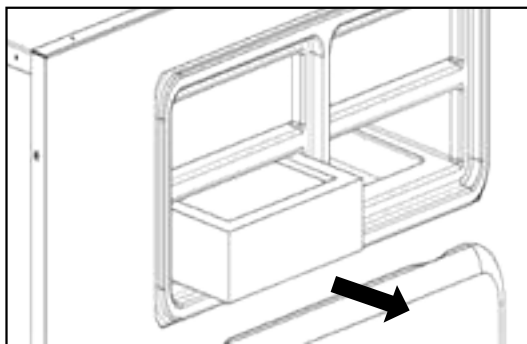


Fig. 8.h

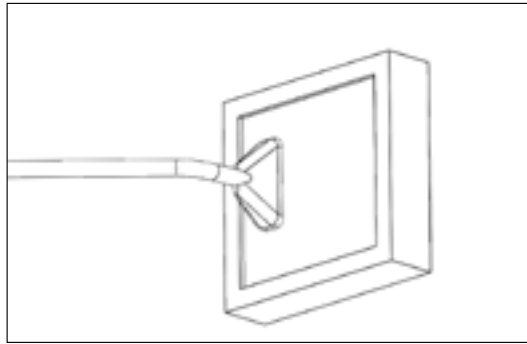


Fig. 8.i

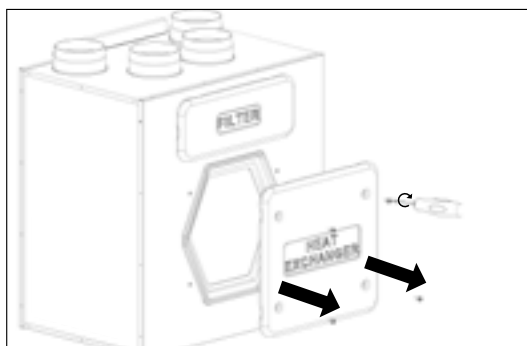


Fig. 8.j

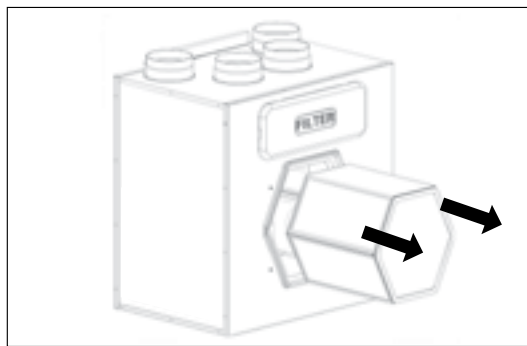


Fig. 8.k

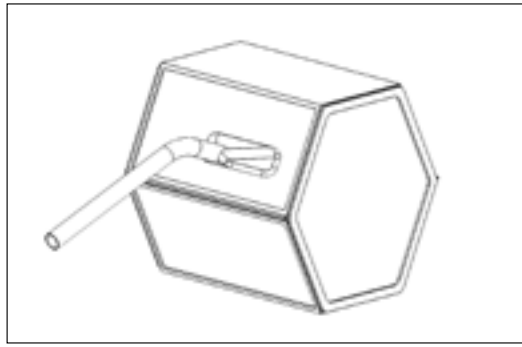


Fig. 8.l

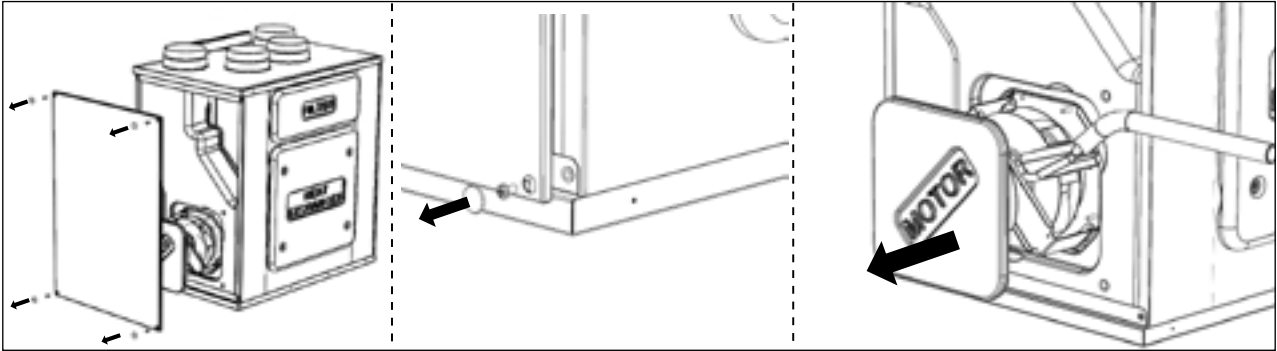



Fig. 8.m

8.5 Trouble shooting

Fans do not start

1. Check that main supply gets to the unit.
2. Check that all connections are working (all connections in terminal box and fast couplings of intake and exhaust air fans).

Reduced airflow

1. Check setting of fan speed on the CTRL-DSP (controller supplied)
2. Check filters. Change of filters required?
3. Check diffusers. Re-setting or cleaning of grilles and diffusers required?
4. Check fans and heat exchange block. Cleaning required?
5. Check if air intake and exhaust have been clogged.
6. Check ducting system for damage and/or dirt accumulation.
7. Check if Anti-frost icon  is displayed on LCD.

Fan noise/vibrations

1. Clean fan impellers. Cleaning required?
2. Check that the fans are firmly in place within the unit.

Excessive air noise

1. Check setting of fan speed on the CTRL-DSP (controller supplied)
2. Check grilles and diffusers. Re-setting or cleaning of grilles and diffusers required?

Gurgling noise

1. Drainage parts have not been installed correctly.
2. Drain connection below the unit has a too low water level, fill it up with water.

Unpleasant smell

1. Drainage parts have not been installed correctly.
2. Drain connection below the unit has a too low water level, fill it up with water.
3. Check filters . Change of filters required?
4. Check ducting system and grilles and diffusers. Cleaning required?

Water leakage near the unit

1. Drain connections and elbows/plugs have not been installed correctly. Sealing necessary?
2. Drain connections and elbows/plugs are dirty. Cleaning necessary?